

In response to the (**FINAL**) Examiner's Action mailed November 6, 2003 (Paper No. 1027), having a shortened statutory period for response set to expire February 6, 2004, the above-identified patent application is further amended to correct the valances of Formulas (IV) and (V) overlooked in the communication filed December 23, 2003:

IN THE CLAIMS:

Please amend claims 3 and 5. Applicant amends these claims to correct Formulas (IV) and (V) wherein "CH" should be -- C --.

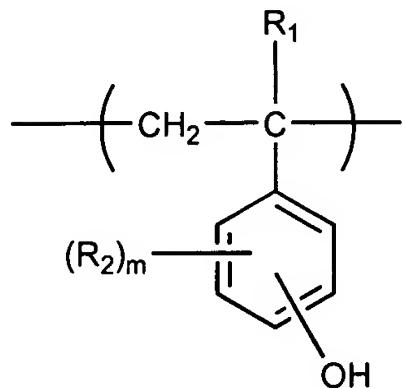
The claims are herein presented on separate sheets.

CLAIM AMENDMENTS

1. (Previously Amended)

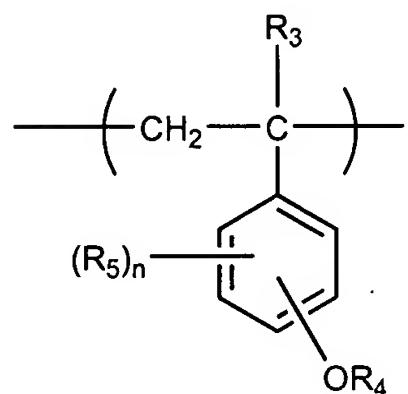
An alkenylphenol copolymer comprising

Component A containing a repeating unit represented by Formula (I)



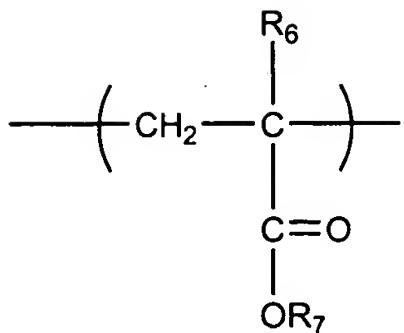
Formula (I)

wherein, R₁ is hydrogen or methyl, R₂ is alkyl having 1 to 5 carbons, m is 0, 1 or 2 and R₂ is the same or different when m is 2 and a repeating unit represented by Formula (II)



Formula (II)

wherein, R₃ is hydrogen or methyl, R₄ is a group to be eliminated and/or decomposed with an acid, R₅ is alkyl having 1 to 5 carbons, n is 0, 1 or 2 and R₅ is the same or different when n is 2 and Component B containing a repeating unit represented by Formula (III)



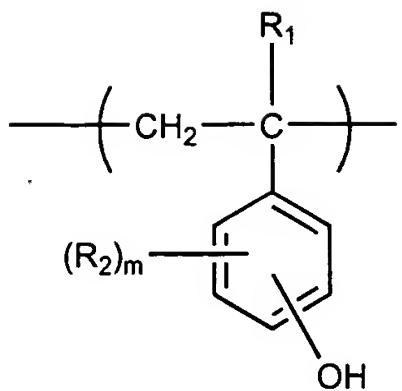
Formula (III)

wherein, R₆ is hydrogen or methyl, and R₇ is a group having a t-butyl group and to be eliminated and/or decomposed with an acid, of which Components A and B are bound in block in the form of A - B, has a ratio Mw/Mn of the weight-average molecular weight Mw to the number-average molecular weight Mn in a range of 1.00 and 1.50, and has no carboxylic acid residues.

2. (Original) An alkenylphenol copolymer according to Claim 1 in which the weight-average molecular weight is 1,000 to 100,000.

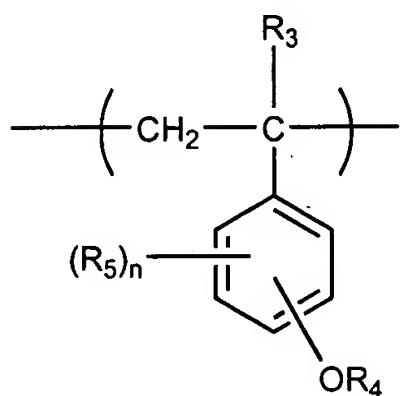
3. (Currently Amended) A process for the preparation of the alkenylphenol copolymer

wherein the alkenylphenol copolymer comprises Component A containing a repeating unit represented by Formula (I)



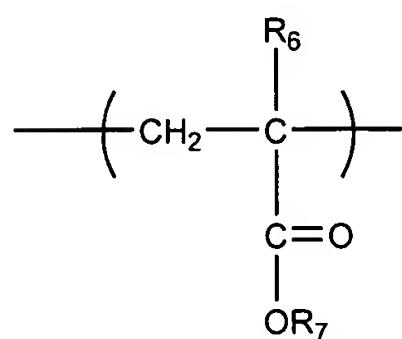
Formula (I)

wherein, R₁ is hydrogen or methyl, R₂ is alkyl having 1 to 5 carbons, m is 0, 1 or 2 and R₂ is the same or different when m is 2 and a repeating unit represented by Formula (II)



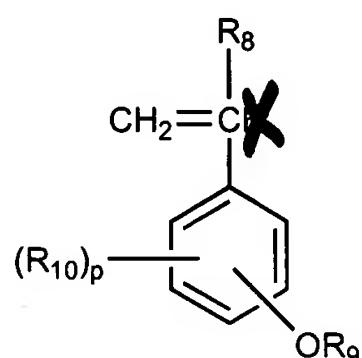
Formula (II)

wherein, R₃ is hydrogen or methyl, R₄ is a group to be eliminated and/or decomposed with an acid, R₅ is alkyl having 1 to 5 carbons, n is 0, 1 or 2 and R₅ is the same or different when n is 2 and Component B containing a repeating unit represented by Formula (III)



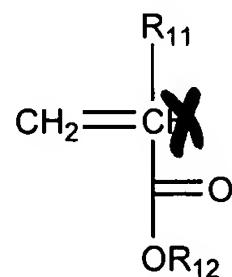
Formula (III)

wherein, R₆ is hydrogen or methyl, and R₇ is a group having a t-butyl group and to be eliminated and/or decomposed with an acid, of which Components A and B are bound in block in the form of A - B, has a ratio Mw/Mn of the weight-average molecular weight Mw to the number-average molecular weight Mn in a range of 1.00 and 1.50, and has no carboxylic acid residues, in which a compound represented by Formula (IV) whose hydroxyl group of the phenol residue is protected



Formula (IV)

wherein, R₈ is hydrogen or methyl, R₉ is a group to be eliminated and/or decomposed with an acid, R₁₀ is alkyl having 1 to 5 carbons, p is 0, 1 or 2 and R₁₀ is the same or different when p is 2 is polymerized, or a compound of Formula (IV) and a vinylaromatic compound are copolymerized, by anionic polymerization using an anionic polymerization initiator as a polymerization initiator, followed by copolymerization with a (meth)acrylic ester represented by Formula (V)



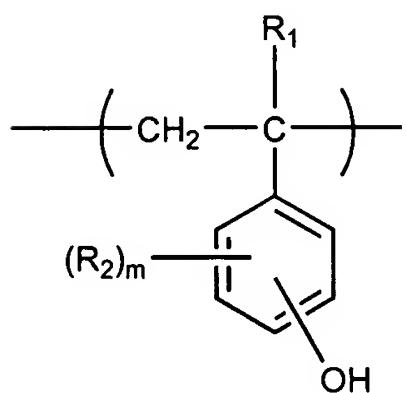
Formula (V)

wherein, R_{11} is hydrogen or methyl, and R_{12} is a group having a t-butyl group and to be eliminated and/or decomposed with an acid; and the obtained block copolymer is treated with an acid reagent to eliminate and/or decompose only a desired specified amount of the group protecting the phenolic hydroxyl group, said treatment being carried out at a control temperature to eliminate and/or decompose only the desired specified amount of the group protecting the phenolic hydroxyl group.

4. (Previously Amended) A process for the preparation of the alkenylphenol copolymer according to Claim 3, in which the step of eliminating and/or decomposing only the desired specified amount of the group protecting the phenolic hydroxyl group with an acid reagent is carried out at below 60°C.

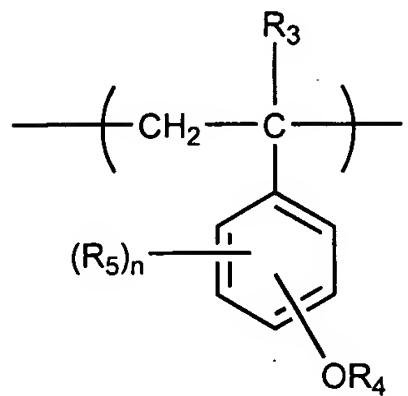
5. (Currently Amended) A process for the preparation of the alkenylphenol copolymer

wherein the alkenylphenol copolymer comprises Component A containing a repeating unit represented by Formula (I)



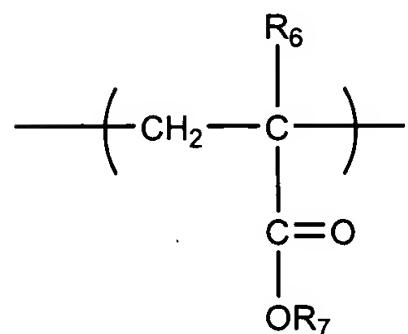
Formula (I)

wherein, R₁ is hydrogen or methyl, R₂ is alkyl having 1 to 5 carbons, m is 0, 1 or 2 and R₂ is the same or different when m is 2 and a repeating unit represented by Formula (II)



Formula (II)

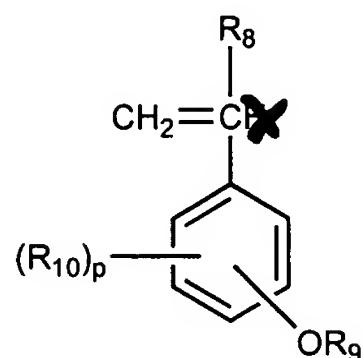
wherein, R₃ is hydrogen or methyl, R₄ is a group to be eliminated and/or decomposed with an acid, R₅ is alkyl having 1 to 5 carbons, n is 0, 1 or 2 and R₅ is the same or different when n is 2 and Component B containing a repeating unit represented by Formula (III)



Formula (III)

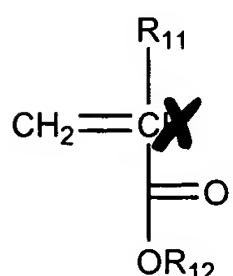
wherein, R₆ is hydrogen or methyl, and R₇ is a group having a t-butyl group and to be eliminated and/or decomposed with an acid, of which Components A and B are bound in block in the form of A - B, has a ratio Mw/Mn of the weight-average molecular weight Mw to the number-average molecular weight Mn in a range of 1.00 and 1.50, and has no carboxylic acid residues and in which the weight-average molecular weight is 1,000 to 100,000,

in which a compound represented by Formula (IV) whose hydroxyl group of the phenol residue is protected



Formula (IV)

wherein, R₈ is hydrogen or methyl, R₉ is a group to be eliminated and/or decomposed with an acid, R₁₀ is alkyl having 1 to 5 carbons, p is 0, 1 or 2 and R₁₀ is the same or different when p is 2 is polymerized, or a compound of Formula (IV) and a vinylaromatic compound are copolymerized, by anionic polymerization using an anionic polymerization initiator as a polymerization initiator, followed by copolymerization with a (meth)acrylic ester represented by Formula (V)



Formula (V)

wherein, R₁₁ is hydrogen or methyl, and R₁₂ is a group having a t-butyl group and to be eliminated and/or decomposed with an acid; and the obtained block copolymer is treated with an acid reagent to eliminate and/or decompose only a desired specified amount of the group

protecting the phenolic hydroxyl group, said treatment being carried out at a control temperature to eliminate and/or decompose only the desired specified amount of the group protecting the phenolic hydroxyl group.

6. (Previously Added) A process for the preparation of the alkenylphenol copolymer according to Claim 5, in which the step of eliminating and/or decomposing only desired specified amount of the group protecting the phenolic hydroxyl group with an acid reagent is carried out at below 60°C.